that are thrown away by the owls are much appreciated by the species of *Trox*, which find therein just the food to their liking. *Trox erinaceus* is most commonly found in the pellets on Staten Island, Mr. Chapin and I having secured forty-nine specimens ranging in date from February 25 to May 10. A single *Trox scaber* was collected in a pellet on May 16. Unless one is on the lookout these little beetles easily escape notice when the pellets are collected, for usually they are to be found beneath them and lie for some time motionless on the ground.

At the meeting of the New York Entomological Society, held May 19, 1903, Rev. J. L. Zabriskie exhibited the snipped-off butt ends of hairs taken from the stomach of *Trox unistriatus* collected some years before about a dead horse. The hairs were placed under a microscope, and all were found to have been cut off in the same oblique manner.

ON THE ORIGIN OF ENTOMOLOGICAL NAMES.

By Robert Percy Dow, B.A.,

New York City.

When Linné began his work of classifying all nature his primary source of information was the existing classification made by Aristotle. In the middle of the eighteenth century almost all so-called learning was classical. The new school of science had awakened in Europe in mathematics and mechanics, but the great chemical awakening was to come half a century later and the development of knowledge of electricity came a few years later still. Linné's first effort was to identify all plants and animals mentioned in classic authors and to apply these names correctly in his new system. There is ample evidence that he made many gross blunders of translation, but there is no indisputable evidence that he altered or suppressed any existing classic names. Following him, the students of entomology plunged eagerly into the task of identifying Aristotelian species. Years later there was a revival of this line of study especially in Germany, but of late it has been neglected. A partial list of the important works on the origin of entomological terms is appended to this article. There does not seem, however, to be any bibliography on the subject of the derivation of names of insects mentioned in classic authors, their true meaning and

the reasons for their application. There is no attempt to examine into any of these names to ascertain whether they have not an inherent meaning that might aid in identification. At all events, such an examination would prove to be a pleasant side line of study. Dr. Gemminger (Gemminger and Harold, Catalogus Coleopterum) has given remarkably complete analyses of names invented by Linné and all his successors, but concerning the earlier names he merely states the fact that they are the classic names of the insects in question. On the other hand, the lexicographers have applied their best efforts in comparative philology but have been handicapped by gross ignorance of entomology.

It is a remarkable fact that the Greeks, who, as early as pre-Homeric times, possessed a knowledge of the transformation from larva to chrysalis and from chrysalis to imago, should have had but one name for butterfly. Large, small, green, black, white or yellow — all were *psyche*, *i. e.*, emblematic of the resurrection. They made a distinction between butterfly and moth, the latter being called *phalæna*. This word, which does not occur in Aristotle, is really applied to the larva and not to the imago. For the root, compare *phalangis* and *phalanx*. The earliest application of the word was to a monster that arose from the sea and devastated provinces. The primitive mind was prone to exaggeration. In Italian it became *balæna*. When ancient scholars sought the animal represented by this word, the only one existing was the whale, and they jumped at a conclusion. The same error occurred in Hebrew in an effort to transcribe intelligently the adventures of Jonah. The whale has not œsophagus enough to swallow a small piece of a man. The real *phalæna* was an imperfect prehistoric recollection of an octopus, long extinct in the Mediterranean, but which some time caught and killed many men in its expansive arms. Compare *phalanges*, *i. e.*, the first ten fingers of the same general shape, which acting in common are effectual. The *phalanx* is a body of men similarly armed and acting in unison, thereby becoming more effectual than the same number of men acting separately. The *phalæna* of classic times is a band of caterpillars which devastate a field, while the same number of scattered caterpillars could do no appreciable harm. The name, then, properly applies to the cutworms, or the Noctuidæ. It was applied by Linné to moths generally. Walker adopted this conception, but Packard tried to confine it to certain Geometrididæ. All of these authors made mistranslations.

The Roman word for butterfly is *papilio* — a Sanskrit root. The lexicographers were wrong in comparing it with *pavilio*. The root is "pal," to stroke. This was duplicated like a host of other roots. Its nearest analogue is *palpare*. Compare the entomological term "*palpi*," the organs with which an insect strokes its food into the maxillæ, and again into its labial attachments. The substantive ending is common. Compare *pipio*, the chirping sparrow; *tenebrio*, literally the doer of deeds in the dark, hence the trickster; *stellio*, the newt, the name coming from the stellar shape of the five toes of each foot.

In prehistoric times men were too busy in the struggle for existence to notice useless insects. They named only those which bit or stung or furnished food. It was left for the children at play to observe and name the rest. They saw the creature flying slowly with palpitating wing-motion clearly discernible. Thay also saw the butterfly alight and stroke its wings before becoming motionless. Virgil and the poets use the word *papilio* as meaning the dash of color flitting by in the sunlight and adding a charm to the landscape.

We may also best consider at this juncture some of the onomatopoetic names applied by children and subsequently incorporated into the language. *Gryllus* (γρύλλος) is their attempt to imitate the stridulation of the common cricket. *Cicada*, the harvest fly, if pronounced with a soft *ch* sound, as it undoubtedly was, has an obvious origin. The Greek τέττιξ sounds like a stick drawn along a picket fence. It describes the European equivalent to *Cicada tibicen* to a nicety. Homer says orators should copy this sweet sound. It offended Virgil's ears most horribly. Homer would be a pleasanter companion on a collecting trip than Virgil. He had a better disposition in adversity. Note also the poetry of Latreille — *tibicen*, the flute player.

Curculio, the grain weevil, occurs once only in Plautus. The duplication and termination are the same as in *papilio*. Compare *curvus*, Latin, curve, English, *coluber*, the Latin for snake. The *Curculio* is the insect which as a larva is footless and makes a circle of itself in its home. As an adult its head and body make a pronounced curve.

A large number of Greek names, similar in form, have so far defied analysis, for example, *cimex*, *sphex*, *culex*, *pulex*, *sirex*, etc. It might be thought that since these creatures are all biters or stingers the suffix *ex* had some meaning of the sort. This theory is unten-

able. The ending occurs in a host of other words and is a contraction. *Myrmex*, the ant, is μυριάς (10,000) plus *ex*. It was once *muriamike* (feminine). In Latin it became by natural transition *formica*. To the Greek mind the ant was that insect which lives in large colonies. To them, primitively, all hosts too numerous to count were "*myria*." As a theory I would suggest that *ex* is quite like the Latin —io, meaning "that which." The philologist must pursue the verb roots, *cim*, *sph*, *cul*, etc.

Inasmuch as the word *sphex* is equivalent to the Latin *vespa*, German *Wespe*, English *wasp*, with equivalents in other languages of Indo-European origin, it is evident that the name was applied before the great emigrations. In Greek it occurs in Herodotus. *Apis* was applied *before* the emigration to Greece and Italy, but *after* the Northern emigration. The English word *bee*, like *buzz*, is purely onomatopoetic. The word *formica* is coeval with *apis*. The English "*ant*" is a contraction of *emmet*. The English "beetle" is the "little biter." The children named these as most others. They merely supposed that the creature bit. The primitive men had no time to investigate. They felt the sting of the *sphex* hundreds of generations before they discovered the beneficence of the honey-bee.

Most of the other names occurring in classic literature can only be considered separately. *Buprestis* is from Hippocrates, meaning an insect which when eaten by cows caused swelling and generally death. Here is an obvious mistranslation by Linné. Cows cannot reach this woodborer. Possibly Hippocrates had an imperfect knowledge of the dipterous creature which develops from the egg laid on the fetlock and after being licked into the mouth passes first into the stomach and thence through the tissues to the surface.

Carabus (Aristotle) has no connection with the Egyptian word rendered in Greek *scarabæus*. The similarity in sound apparently deceived the lexicographers and the unobservant Greek as well. The curved mandibles of the Carabid marked it to the children's mind as differing from the branching mandibles of the staghorn beetle. Linnæus translated correctly. The Latin for staghorn is unmistakably the *Lucanus*, as described in Pliny. The painstaking scholar who noted sadly that the *Lucanus cervus* is not as common in Lucania as elsewhere, should read the joke book. The predecessor of Pliny had his fling at the rural Lucanian tribe, whether the term applied to the big arms, lumbering gait, hooked noses or prognathous jaws.

Greek literature has plenty of examples of similar jests directed against the boorish Bœotians.

Fabricius was responsible for an odd translation of *Cossus*, Latin, meaning a wood-boring larva good to eat. The lexicographer refers this to a *Prionus*. It is much more likely that it refers to some scarabæid larva which lives in rotten wood and makes its cocoon of chips. Such larvæ are not only eatable but very tasty. German boys are fond of the adult *Melolontha* to this day. The head is removed and the abdominal contents sucked out. The first taste is sweetish, the last is slightly bitter.

Ephemeron (Aristotle) is self explanatory. *Melolontha* is the pollen feeder in adult form. The Chrysomelid is merely a beetle of a distinct golden color, perhaps a Scarabæid, perhaps a *Coptocycla*. Linné mistranslated *Attelabus* of Aristotle. The context indicates that it is a wingless creature with large eyes, a locust or some allied insect. *Thrips* is, by the context, a wood-borer. *Dermestes*, the skin-eater, is Homeric. It can only apply to the Dermestidæ, or possibly a *Trox*. *Ips* is Homeric and was mistranslated by Fabricius a Nitidulid, and by De Geer as a Rhynchophorous insect. It is a larva which eats horn and wood, quite possibly a Ptinid. The Latin *Musca* does not admit of mistranslation.

Staphylinus was a misconception on the part of Aristotle and a mistranslation on the part of Linné. Literally it is an insect which smells like the bruised wild carrot, and is one of the Coleoptera, as Aristotle understood that order. Hemiptera were unknown to him.

The *cimex*, the only Hemipteron named, is wingless. The Homoptera he relegated to the locust group. The Coleoptera to him were the insects whose backs were covered by a sheath, no matter whether the elytra met in a straight line down the back or crossed. It is to be doubted whether he would have recognized the Staphylinidæ and Pselaphidæ, with their short elytra, as beetles at all. I believe, therefore, that *Staphylinus* refers to a strong-smelling Hemipteron, probably a pentatomid. So also *Spondyla*, a strong-smelling insect keeping close to the roots of plants, is probably a Hemipteron of some sort.

Clerus (Aristotle) is a coleopterous insect noxious to bees. On this slender evidence the learned Camus argued through many dreary pages that it must be the insect now known as *Clerus apivorus*. The pros and cons of excited and angry German scholars over this point filled volumes from 1832 to 1849.

Acarus is well-named, the mite, that insect which is so small that it cannot be cut in two or further divided. To the children who named it, it was the smallest of living creatures.

Blatta is the insect best characterized by the adjective *lucifuga*. It is in Virgil the exact opposite of the sun-loving *papilio*. Linné applied it correctly, although there are a host of other insects to which it would apply just as well. To the child mind of Italy, if not of earlier peoples, it meant any creepy, crawly insect which beset folks when out in the woods or fields at night.

The *Syrpha* of Homer was a small biting fly or gnat. Linné either mistranslated or misunderstood the habits of the Syrphidæ. *Lampyrus* could not possibly be mistranslated. It is doubtful whether *Silpha* was a beetle at all. It is unlikely that *Bruchus* was a beetle.

BIBLIOGRAPHY.

Bona-Meyer, J. Aristoteles Thierkunde. Berlin, 1855.

Burmeister. Handbuch der Entomologie, Vol. I, p. 337 et seq.

Camus. Translation of Aristotle's History of Animals.

Dierbach, J. H. Uebersicht der gebräuchlichsten Arzeneimittel des Alterthums mit besonderer Rücksicht auf die Werke des Dioscorides u. Plinius. Isis, 1842, Vol. II, pp. 107–122.

Dumeril. Considérations générales sur les Insectes, 1825.

Eiselt. Geschichte der Systematik und Literatur der Insectenkunde. Leipzig, 1836.

Gravenhorst. Dissertatio sistens conspectum historiæ entomologiæ, imprimis systematum entomologicorum. Helmstadii, 1801.

Groshaus, W. P. E. Prodromus Faunæ Homeri et Hesiodi. v. d. Hoeven Tidjdschr., t. 6, pp. 289–320, 1839; t. 10, pp. 301–343, 1843.

Harris, T. M. A Dictionary of the Natural History of the Bible. London, 1833.

Keferstein, A. Ueber die goldgrabenden Ameisen der Alten. Isis, 1825, II, pp. 105–114.

Kirby & Spence. Introduction to Entomology, Vol. 4, XLVII.

Klopsch, J. G. Entstehung der Insecten nach Aristoteles. Isis, 1839, VII, p. 744.

Lacordaire, M. Th. Introduction à l'Entomologie. Paris, 1838, pp. 619 et seq.

Latreille, P. A. Des insectes peints ou sculptés sur les monuments de l'Égypte. Mem. Mus. Hist., Paris, 1819, Vol. V, pp. 249–270.

Latreille, P. A. Cours d'Entomologie. Paris, 1831.

Spix. Geschichte und Beurtheilung aller Systeme in der Zoologie, etc. Nüremberg, 1811.

Thompson, J. Mémoire pour servir a l'histoire de l'Entomologie d'Aristotle. Archiv Entom., 1857, I, pp. 90–104.